U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION TYPE CERTIFICATE DATA SHEET E22EA	TCDS NUMBER E22EA REVISION: 13* DATE: JANUARY 10 , 2002 PRATT & WHITNEY CANADA CORP MODELS: PT6T-3 PT6T-3BE PT6T-3DE PT6T-3A PT6T-6 PT6T-3DF PT6T-3B PT6T-3D PT6T-3BF PT6T-3BG PT6T-9

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E22EA) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations, provided they are installed, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

TYPE CERTIFICATE HOLDER: Pratt & Whitney Canada Corp
(Formerly Pratt & Whitney, Inc.)
(Formerly Pratt & Whitney Aircraft of Canada Ltd. and United Aircraft of Canada, Ltd.)
Longueuil, Quebec, Canada J4G1A1

I. MODELS	**PT6T-3/-3A/-3B/-3BE**	**PT6T-6**	**PT6T-3D**	**PT6T-3DE**
TYPE	Twin Power Section Turboshaft			
RATINGS (See NOTE 1)				
Maximum continuous at sea level				
Total output shaft hp.	1600	1675	1600	- -
Single power section shaft hp.	800	825	800	- -
Takeoff at sea level (5 min)				
Total output shaft hp.	1800	1875	1800	- -
Single power section shaft hp.	900	925	900	- -
30 min. helicopter rating at sea level				
Total output shaft hp.	---	---	---	---
Single power section shaft hp.	900 (-3B, -3BE, 970)	970	---	1079
Continuous OEI power rating at sea level				
Single power section shaft hp.	---	---	1024	---
2 1/2 min. power rating at sea level				
Single power section shaft hp.	--- (-3B, -3BE, 1025)	1025	1133	- -

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PAGE	1	2	3	4	5	6	7
REV.	13	13	13	13	13	13	13

LEGEND: "- -" INDICATES "SAME AS PRECEDING MODEL"
"---" NOT APPLICABLE
NOTE: ALL PAGES ARE REFORMATTED. SIGNIFICANT CHANGES ARE BLACK-LINED IN THE LEFT MARGIN.

MODELS (continued)	PT6T-3DF	PT6T-3BF/-3BG	PT6T-9
TYPE	Twin Power Section Turboshaft		
RATINGS (See NOTE 1)			
Maximum continuous at sea level			
Total output shaft hp.	- -	- -	1650
Single power section shaft hp.	- -	- -	825
Takeoff at sea level (5 min)			
Total output shaft hp.	- -	- -	1855
Single power section shaft hp.	- -	- -	928
30 min. helicopter rating at sea level			
Total output shaft hp.	---	---	---
Single power section shaft hp.	- -	1025	---
Continuous OEI power rating atsea level			
Single power section shaft hp.	---	---	1100
2 1/2 min. power rating at sea level			
Single power section shaft hp.	- -	1025	---
2 minute power rating at sea level,			
single power section shaft hp.			1150
30 sec. Power rating at sea level,			
single power section shaft hp.			1269
Limitations:			
Engine speed: (See NOTE 7)			
Maximum continuous at sea level,			
When Governor P/N 3018712 is installed,			
Output r.p.m. (max.)	6600	- -	
Gas Generator r.p.m. (max.)	38100 (-3B, -3BE, 38,800)	38,400	
When Governor P/N 3118388-01 is installed,			
Output r.p.m. (max.)			6600
Gas generator r.p.m. (max.)			39,300
Takeoff at sea level			
Output r.p.m. (max.)	6600	- -	6798
Gas generator r.p.m. (max.)	38100 (-3B, -3BE, 38,800)	38,400	39,300
30 min. helicopter rating at sea level			
Output r.p.m. (max.)	6600	- -	---
Gas generator r.p.m. (max.)	38100 (-3B, -3BE, 38,800)	38,400	---
Continuous OEI rating at sea level			
Output r.p.m. (max.)	---	---	---
Gas Generator r.p.m. (max.)	---	---	---
2 1/2 min. power rating at sea level			
Output r.p.m. (max.)	--- (-3B, -3BE, 6600)	6600	6600
Gas generator r.p.m. (max.)	--- (-3B, -3BE, 39,400)	39,000	41,600
Engine Torque			
Maximum continuous			
lb.-ft. (max.) each power section applies within range of 5610 to 6798 r.p.m.	657	- -	- -
Takeoff (5 min.)			
lb.-ft. (max) each power section applies within range of 6000 to 6600 r.p.m. (6000 to 6798 for -3D)	738	- -	- -
30 min. helicopter rating			
lb.-ft. (max.) each power section	738 (-3B, -3BE, 815)	815	- -
Continuous OEI power rating			
lb.-st. (max.) each power section applies within range of 6000 to 6600 r.p.m.	---	---	815
2 1/2 min. power rating			
lb.-ft. (max.) each power section applies within range of 6000 to 6800 r.p.m.	--- (-3B, -3BE, 815)	815	902

MODELS (continued)	PT6T-3DF	PT6T-3BF/-3BG	PT6T-9
Temperature (Measured Inter-Turbine)			
Maximum continuous	1410˚F (765˚C)	1099˚F (593˚C)	1490˚F (810˚C)
Takeoff (5 min.)	1490˚F (810˚C)	1154˚F (624˚C)	1490˚F (810˚C)
30 min. helicopter rating	1490˚F (810˚C) /	1154˚F (624˚C)	---
Continuous OEI	---	---	1508˚F (820˚C)
Starting transient (2 sec.)	1995˚F (1090˚C)	1400˚F (760˚C)	1995˚F (1090˚C)
2 1/2 min. power rating	(-3B, -3BE 1562˚F, 850˚C)	1193˚F (645˚C)	1724˚F (940˚C)

I. MODELS	PT6T-3DE	PT6T-3DF	PT6T-3BF/-3BG	PT6T-9

Limitations				
Engine speed: (See NOTE 7)				
Maximum continuous at sea level,				
When Governor P/N 3018712 is installed,			6,600	---
Output rpm (max.)			38,800	---
Gas Generator rpm (max.)				
When Governor P/N 3118388-01 is installed,				
Output rpm (max.)	6600	- -		---
Gas generator rpm (max.)	39,300	- -		---
Takeoff at sea level				
Output rpm (max.)	6798	- -	6,600	6798
Gas generator rpm (max.)	39,300	- -	38,800	38,850
30 min. helicopter rating at sea level				
Output rpm (max.)	6600	- -	- -	---
Gas generator r.p.m. (max.)	40,250	40,700	39,400	---
Continuous OEI power rating at sea level				
Output rpm (max)	---			6,798
Gas Generator rpm (max)	---			39,500
2 1/2 min. power rating at sea level				
Output rpm (max.)	6600	- -	6,600	---
Gas generator rpm (max.)	41,600	- -	39,400	---
2 min. power rating at sea level				
output rpm(max)				6,798
gas generator rpm (max)				40,160
30 sec power rating at sea level				
output rpm (max)				6,798
gas generator rpm (max)				41,200
Engine Torque				
Maximum continuous	657	--		--
lb.-ft. (max.) each power section applies within range of 5610 to 6798 rpm (6402 to 6798 for PT6T-9)				
Takeoff (5 min.)	738	--	--	--
lb.-ft. (max) each power section applies within range of 6000 to 6600 rpm (6000 to 6798 for -3D)(6402 to 6798 for PT6T-9)				
30 min. helicopter rating	859	--	815	---
lb.-ft. (max.) each power section				
Continuous OEI power rating	---	---	---	875
lb.-ft. (max) each power section applies within range of 6000 to 6600 rpm (6402 to 6798 for PT6T-9)				
2 1/2 min. power rating	902	--	815	---
lb.-ft. (max.) each power section applies within range of 6000 to 6800 rpm				
2 min. power rating				
lb-ft (max) each power section applies within range of 6,402 to 6,798 rpm				915
30 sec power rating				
lb-ft (max) each power section applies within range of 6,402 to 6,798 rpm				1010

I. MODELS (cont'd_	PT6T-3DE	PT6T-3DF	PT6T-3BF/-3BG	PT6T-9
Temperature (Measured Inter-Turbine)				
Maximum continuous	1490°F (810˚C)	- -	1410˚F(766°C)	1445°F(785°C)
Takeoff (5 min.)	1490°F (810˚C)	- -	- -	1517°F(825°C)
30 min. helicopter rating	1571°F (855˚C) /	1625˚F (885˚C)	1562˚F (850˚C)	---
Continuous OEI	---		---	1580°F(860°C)
Starting transient (2 sec.)	1995°F (1090˚C)	- -	1995˚F (1090˚C)	- -
2 1/2 min. power rating	1724°F, 940˚C)	- -	1562˚F (850˚C)	---
2 min. power rating				1661°F(905°C)
30 sec power rating				1760°F(960°C)

II. MODELS	ALL

BLEED

External airbleed shall not exceed 5.25 percent.
No airbleed is permissible during the starting cycle.
Bleed air contains less than one part per million of engine-introduced contamination.

FUEL

Refer to Installation Manual.

OIL

Pressure

The following pressures apply to normal operating temperatures.
During extremely cold starts, oil pressure may reach 300 psi

Power Section

80 to 115 psig at 30,000 rpm gas generator speed and above (80 to 125 psig for PT6T-9).
40 psig minimum, below 30,000 rpm gas generator speed.

Gearbox

60 to 80 psig output speeds of 6200 to 6798 rpm
Pressure will vary between 0 psig at zero output speed and 80 psig at 6798 rpm

Temperature

Takeoff and maximum continuous, 32˚F (0˚C) to 240˚F (115˚C)

Limited periods of 5 minutes at 275˚F (135˚C)
Starting minimum, PWA 521 Type II -40˚F (-40˚C)
PWA 521 Type I -65˚F (-54˚C)

Accessory Drives

The following apply to the accessory drives, which are provided by the engine and included in the basic engine weight:

Driven by Gas Generator Turbine	Maximum Torque in. - lb. Continuous	Static	Maximum Overhang In. -lb.
Tachometer** Accessory Gearbox	7.0	50	25
Starter* and/or Generator	200	1600	180
Tachometer** Combining Gearbox	7.0	50	25
Blower Drive	155	1500	160

*Overload torque 300 in.-lb. 30 sec. max. per application
**Not applicable to the PT6T-9

II. MODELS (Cont.)	ALL

Specifications

Fuel — JP-1, JP-4 and JP-5 fuels conforming to PWA Specification No. 522 and later revisions. (See NOTE 2.)

Oil

Type — Synthetic type conforming to the current PWA 521 Type 1 or PWA 521 Type II Specifications. (See NOTE 3)

Tank Capacity

Power Section (EACH)	1.60 Gal. Total .75 Gal. Usable
Gearbox	1.25 Gal. Total .25 Gal. Usable

PRINCIPAL DIMENSIONS

Nominal Length, in. - 65.2 (-3, -3A, -3B, -3BE, -3BF, -3BG, -3D, -3DE, -3DF); 66.8 (-6): 66.1 (PT6T-9).
Nominal width, in. - 44.5 (-3, -3A, -3B, -3BE, -3BF, -3BG, -3D, -3DE, -3DF); 43.5 (-6): 45.0 (PT6T-9)
Nominal height, in. - 32.6 (-3, -3A, -3B, -3BE, -3BF, -3BG, -3D, -3DE, -3DF); 32.6 (-6): 35.8 (PT6T-9).

C.G. LOCATION

Forward of gearbox mount plane, in. - 18.89 (-3, -3B, -3BE, -3BF, -3BG, -3D, -3DE, -3DF -6) 18.47 (-3A), 19.21 (PT6T-9).
Above engine center line, in. - 1.62 (-3, -3B, -3BE, -3BF, -3BG, -3D, -3DE, -3DF -6) 1.63 (-3A), 2.06 (PT6T-9).

Right side of engine center line, in. -0.15 (-3, -3B, -3BE, -3BF, -3BG, -3D, -3DE, -3DF -6), 0.07 (-3A), 0.36 (PT6T-9).
Forward direction from combining gearbox toward power section intake

CERTIFICATION BASIS (See Note 12)

FAR 33 dated February 1, 1965, including amendments 33-1 through 33-4 and Special Conditions 33-23-EA-6 dated June 8, 1970, including amendment No. 1 (all except for the PT6T-9)

For PT6T-9:
FAR 33, dated February 1, 1965, including amendments 33-1 through 33-4 and Special Conditions 33-004-SC plus the following:
1) FAR 33.62, 33.65, 33.81, 33.82 and 33.91, all at Amendment 6.
2) FAR 33.4, 33.5 and 33.99, all at Amendment 9.
3) FAR 33.14, 33.17, 33.27, 33.66, 33.75, 33.77, 33.89 and 33.94, all at Amendment 10.
4) FAR 33.28 Amendment 15.
5) FAR 33.83 Amendment 17.
6) FAR 33.7, 33.29, 33.63, 33.67, 33.85, 33.87, 33.88 and 33.93, all at Amendment 18.

Model	Date of Application	Date Type Certificate Issued/Revised
PT6T-3	April 1, 1968	July 9, 1970
PT6T-3A	August 18, 1972	October 11, 1972
PT6T-6	December 2, 1974	December 11, 1974
PT6T-3B	January 8, 1979	September 14, 1979
PT6T-3BE	October 1, 1990	October 12, 1990
PT6T-3D	June 14, 1993	August 12, 1993
PT6T-3DE	November 24, 1995	November 30, 1995
PT6T-3DF	May 15, 1996	June 17, 1996
PT6T-3BF	August 28, 1998	October 8, 1998
PT6T-3BG	August 28, 1998	October 8, 1998
PT6T-9	March 28, 2000	January 10, 2002

IMPORT REQUIREMENTS

To be considered eligible for installation on United States registered aircraft, each engine to be exported to the United States shall be accompanied by a certificate of airworthiness for export, or certifying statement endorsed by the exporting cognizant civil airworthiness authority, which contains the following language:

1. This engine conforms to its United States type design (Type Certificate Number E22EA) and is in a condition for safe operation.

2. This engine has been subjected by the manufacturer to a final operational check and is in a proper state of airworthiness.

Reference FAR Section 21.500, which provides for the airworthiness acceptance of aircraft engines or propellers manufactured outside of the United States for which a United States type certificate has been issued.

Additional guidance is contained in FAA Advisory Circular 21-23, Airworthiness Certification of Civil Aircraft, Engine, Propellers, and Related Products, imported into the United States.

NOTES

NOTE 1. The engine ratings are based on static sea level conditions.
Compressor inlet air (dry) 59˚F, 29.92 in. Hg.
Compressor intake screen installed.
No external accessory loads and no airbleed.

NOTE 2. Emergency use of MIL-G-5572, (all grades) is permitted for a total time period not exceeding 150 hours during any overhaul period. It is not necessary to purge the unused fuel from the system when changing fuel types. For the PT6T-9, refer to the engine maintenance manual.

NOTE 3. Pratt & Whitney Canada Service Bulletin 5001 lists approved brand oils. For the PT6T-9, refer to the engine maintenance manual.

NOTE 4. This engine meets FAA requirements for operation in icing conditions when the intake system conforms with the Pratt & Whitney Canada Installation Manual instructions for inertial separation of snow and icing particles.

NOTE 5. For the PT6T-3, PT6T-3B, PT6T-3BE, PT6T-3BF, PT6T-BG, PT6T-3D, PT6T-3DE, PT6T-3DF. PT6T-6 and PT6T-6B models, the engine is certificated as a unit comprising two separate power sections with the capability of single engine operation with either power section alone in multi-engined helicopters. The unit is also approved as a single engine. In either event, the installation compatibility of the mixing gearbox components with the rotorcraft drive system will have to be established.

NOTE 6. Phillips FPA-55MB anti-icing additive at a concentration not in excess of 0.15% by volume is approved for use in fuels for these engines. For the PT6T-9, refer to the engine maintenance manual.

NOTE 7. 100% output shaft speed equals 6600 output shaft r.p.m. or 33,000 power turbine r.p.m.

NOTE 8. Certain engine parts are life limited. These limits are listed in Pratt & Whitney Canada Service Bulletin No. 5002 as revised. For the PT6T-9, refer to the engine maintenance manual, airworthiness limitations section.

NOTE 9. Power may be restored in hot day conditions by means of water or water/methanol injection when accomplished in accordance with the requirements of the Pratt & Whitney Canada. Installation Manual (PT6T).

NOTE 10. The above models incorporate the following characteristics:

Model	Characteristics
PT6T-3	Basic model
PT6T-3A	Similar to PT6T-3 except for aluminum instead of magnesium gearbox castings.
PT6T-3B	Similar to PT6T-3 except for single power section contingency ratings and PT6T-6 compressor turbine components.
PT6T-6	Similar to PT6T-3 except for 2 1/2 min rating; higher ratings and improved engine parts.
PT6T-3BE	Same as PT6T-3B except for deletion of the torque sharing function, and a higher limiter setting.
PT6T-3D	Same as PT6T-3B except for improved hot section hardware to allow for increased ratings.
PT6T-3DE	Same as PT6T-3D except continuous OEI replaced by 30 minute rating.
PT6T-3DF	Similar to PT6T-3DE except for improved hot section hardware to allow for increased ratings.
PT6T-3BF	Similar to PT6T-3B except 30 minute OEI rating is equivalent to the 2 1/2 minute OEI rating.
PT6T-3BG	Similar to PT6T-3BE except 30 minute OEI rating is equivalent to the 2 1/2 minute OEI rating.
PT6T-9	Similar to PT6T-3DF except for improved hot section to allow for increased ratings and new 30 second/2 minute OEI ratings structure. The engine is also equipped with an engine electronic control system (EEC). The software for the EEC has been developed and tested in accordance with the provisions of RTCA/DO178B, level A. The EEC has not been fire tested and, therefore, must not be mounted in a designated fire zone. Lightning protection limits, including power quality, electromagnetic compatibility and interference for the EEC system are specified in section 6 of the installation manual.

NOTE 11. Service bulletins, structural repair manuals, vendor manuals, aircraft flight manuals, and overhaul and maintenance manuals, which contain a statement that the document is approved by Transport Canada, are accepted by the FAA and are considered FAA approved unless otherwise noted. These approvals pertain to the type design only.

NOTE 12. The PT6T-9 turboshaft engine configuration is similar to the PT6T-3 series turboshaft engine models. These engines have two identical free-turbine power-sections coupled to a common mixing gearbox module with a single output shaft. One engine inoperative (OEI) power is the rated engine power for operation with one power-section inoperative.

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